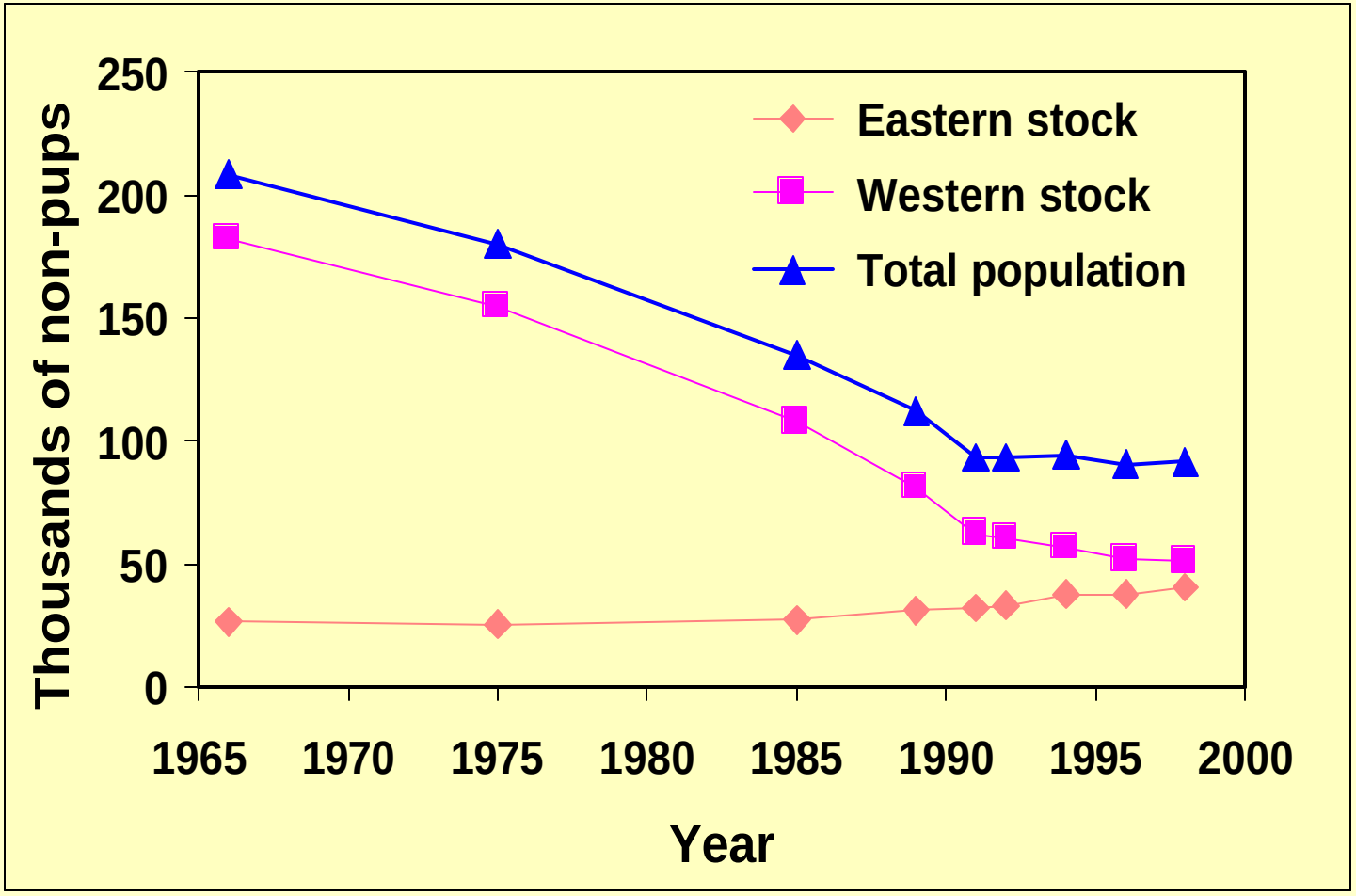
Steller Sea Lion Research Coordination Meeting: Background and Research Challenges

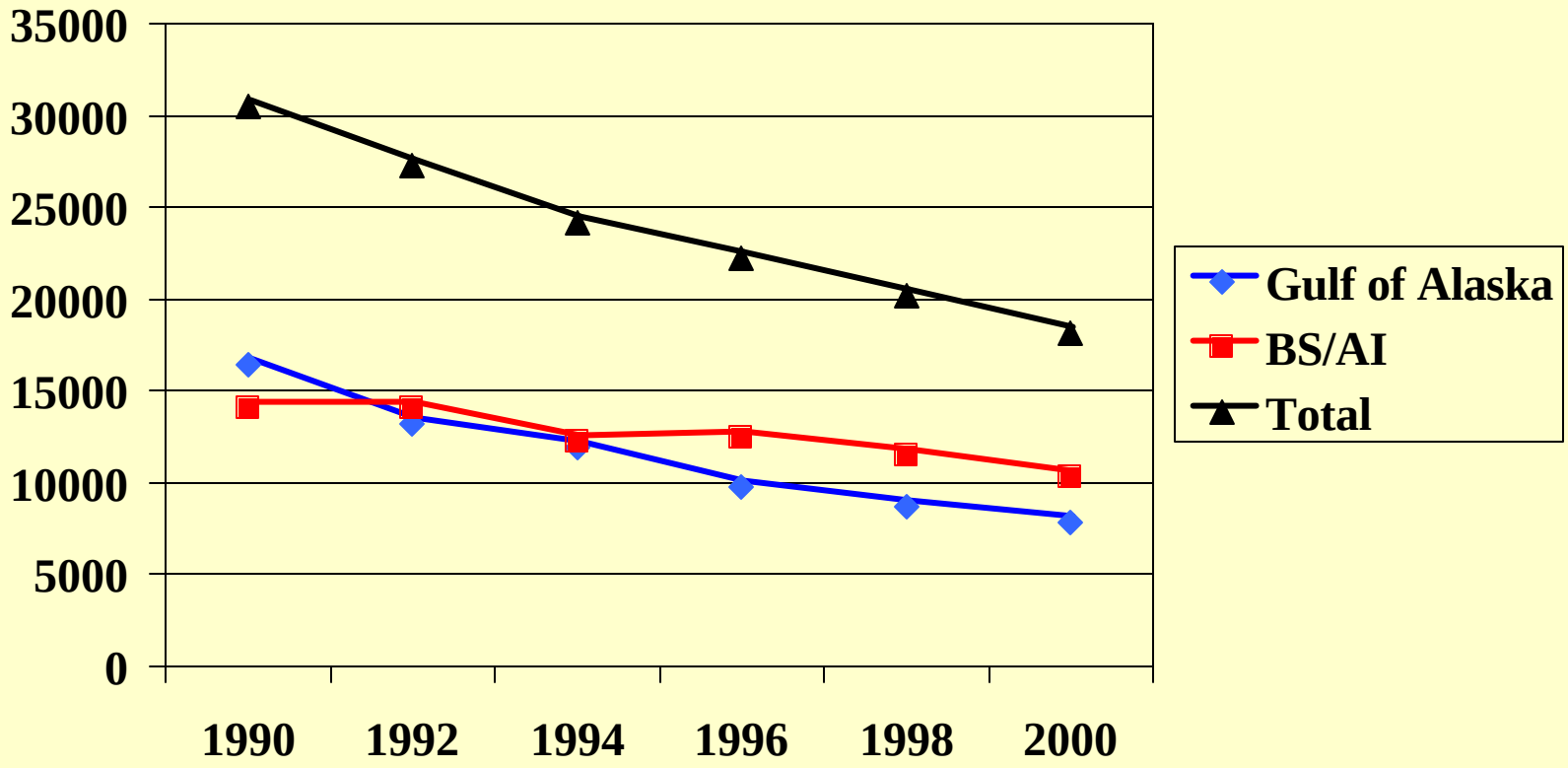
24 **January** 2001

Distribution of Steller Sea Lions (from North Pacific Universities Marine Mammal Research Consortium website)

Steller Sea Lion Population Trends



Counts of adult and juvenile Steller sea lions (trend sites)



Frequency of occurrence of Steller sea lion prey from scats > 10% (1990-1998). Maximum FO from Winter or Spring

Food Items	*GOA*	*EBS/AI*
Pollock	73%	54%
Pacific cod	34%	21%
Atka mackerel	5%	78%
Arrowtooth fl.	22%	4%
Cephalopods	5%	16%
Herring	11%	8%
Salmon	43%	20%
Sandlance	14%	3%

Ultimate Cause(s) of Decline

- Entanglement in marine debris
- Pup/subsistence harvest
- Pollution

} Not likely causes of the decline

- Harassment
- Increased predation
- Disease

} Not likely causes of the decline; may now be exacerbating the decline

- Oceanographic changes
- Indirect effects of fisheries

} **Hypotheses: Decline is caused by reduced prey availability caused by oceanographic changes or indirect effects of fisheries**

Preliminary 3-Year (FY00-02) Research Plan

Objectives:

- To understand the current decline in abundance of the western stock of Steller sea lions
- To evaluate the extent to which commercial fisheries are contributing to this decline

Steller Sea Lion Federal Funding

(in 000s)

FY	NMFS	ADFG	NPMMC	NFWF	ASLC
92	676	750			
93	617	728			
94	584	708			
95	645	707.5			
96	831	700.5	305		
97	867	700.5	322		
98	977.7	720	323	1000	
99	1653	790	323	750	
00	2110.4	990	720	0	900

Research Challenges

- Studies must be designed to differentiate between changes in marine mammal populations due to the environment and changes resulting from fisheries
- Need to gather data on the appropriate scale to determine. . .
  - Cumulative ecosystem impacts
  - Indirect effects of fisheries on Steller sea lions

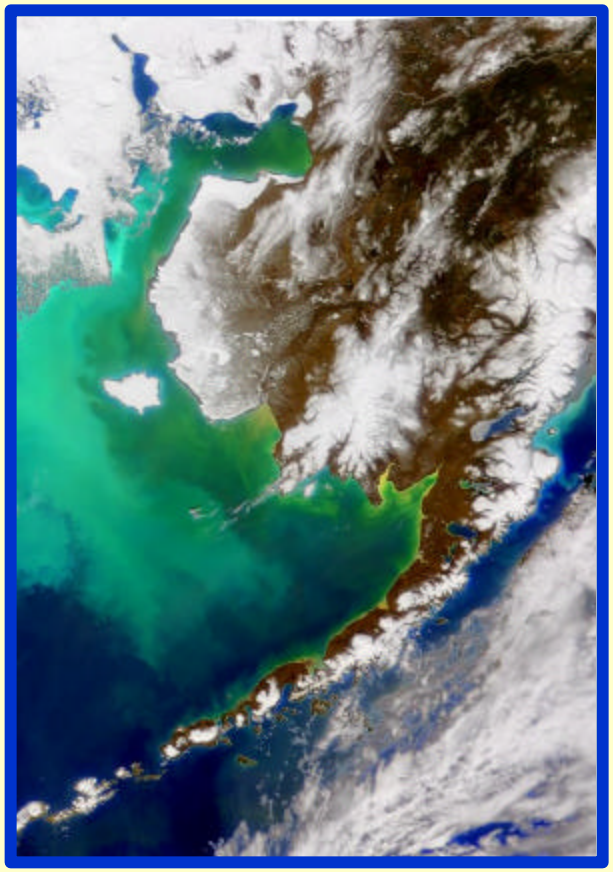


Photo by NASA/SeaWIFs

Current Lines of Research (FY00)

- Non-pup counts and pup counts (NMFS, ADFG)
- Food habits, nutrition, energetics, and foraging behavior (NMFS, ADFG, UofA-Sea Grant, NPUMMRC, ASLC, TAMU
- Predation on Stellers- killer whales (NPUMMRC, NMFS)
- Ecosystem change (NMFS, NPUMMRC)
- Disease/health condition/contaminants (NMFS, NPUMMRC, ADFG, ASLC)

Current Lines of Research (FY00)-cont.

- Satellite tagging/other tagging (NMFS, ADFG, NPUMMRC, ASLC)
- Remote sensing (NMFS, UofA,NPUMMRC)
- Pup branding and tagging (NMFS, ADFG)
- Competition with Fisheries (NMFS, NPUMMRC)
- Reproduction (ASLC, NMFS)

Efficacy Studies in FY00 (funding level = $850K)

Determine the effectiveness of the fishery management regime by collecting the following information both inside and outside the exclusion zones:

- Steller sea lion abundance, distribution and foraging behavior
- Abundance and distribution of pollock and mackerel

Jason Waite,
Texas A&M University

Fishery Management under ESA, MSFCMA, and NEPA

- Fishery management measures under the MSFCMA are implemented as amendments to existing Fishery Management Plans (FMP)
- Amendments often necessitate statutory requirements under the ESA (e.g., Biological Opinion) and NEPA (e.g., Environmental Assessment, Environmental Impact Statement)

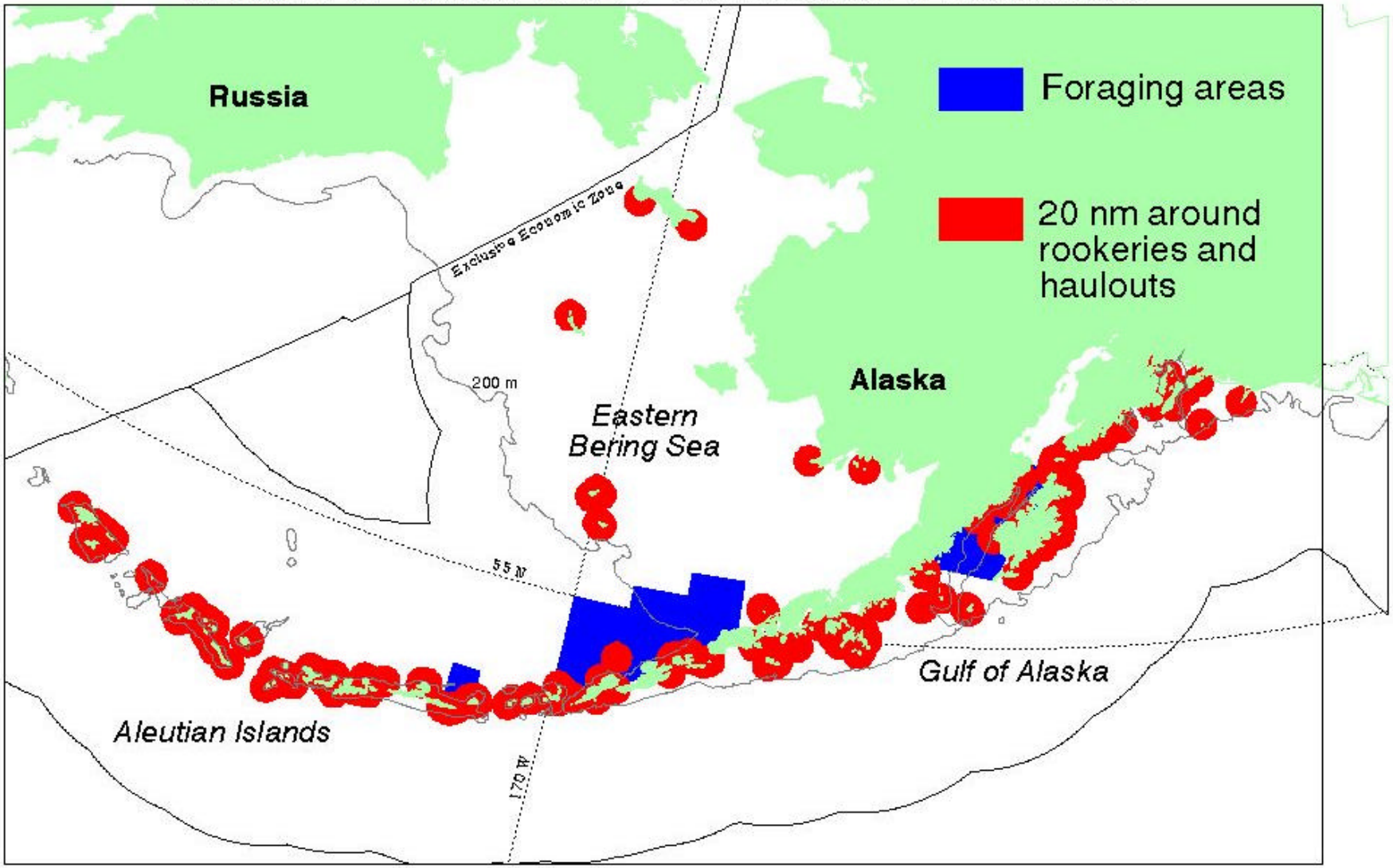
Fishery Management under ESA, MSFCMA, and NEPA- cont.

- April 1990, by emergency rule, SSL listed as threatened under the ESA, monitoring of incidental take required, establishment of Recovery Team for SSL
- Jan 1991, seasonal restrictions for pollock required
- June 1991, spatial restrictions for pollock required, prohibition on trawling within 10 nm of 14 rookeries

Fishery Management under ESA, MSFCMA, and NEPA-cont.

- Jan 1992, expanded no-trawl zones to 20 nm for 5 rookeries 1 Jan – 15 April, and established no-trawl zones within 10 nm of 37 rookeries in GOA and BS/AI
- Jan 1993, release of SSL Recovery Plan
- Aug 1993, critical habitat designated (SSL)
- May 1997, western stock endangered
- March 1998, directed fishing for forage fish prohibited in Federal waters

Steller sea lion Critical Habitat



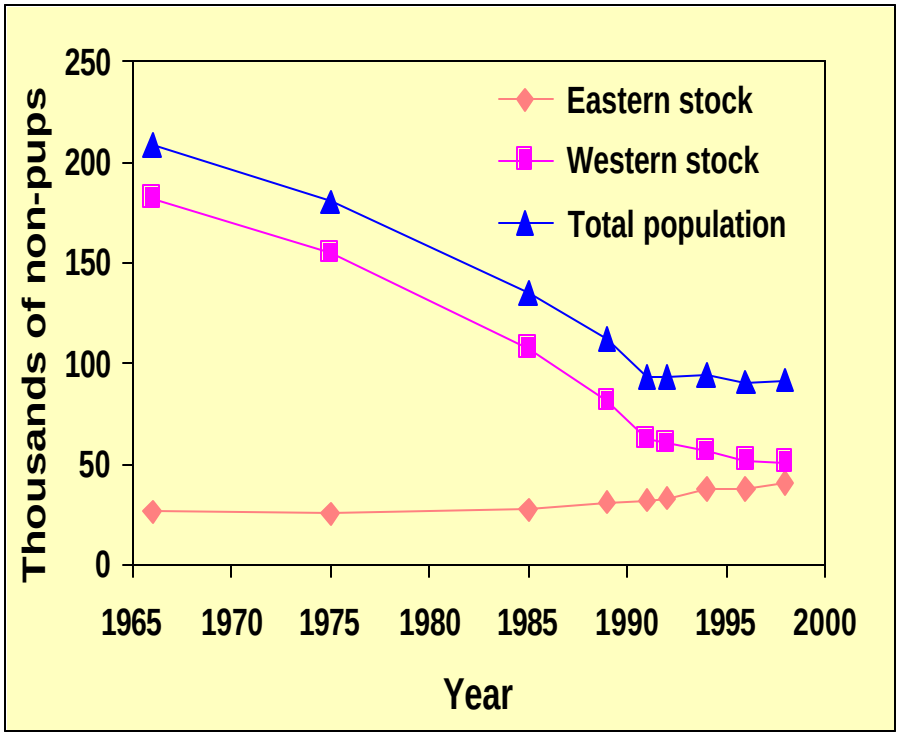
Litigation Based on ESA and NEPA Compliance

- 3 Dec 1998- biological opinion authorizing groundfish fisheries concluded Atka mackerel fishery not likely to jeopardize SSL;pollock fisheries were likely to cause jeopardy and adverse modification of CH
- 22 Dec 1998- biological opinion on TAC specifications concluded fisheries not likely to cause jeopardy or adverse modification of CH

Jeopardy-

"Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species."

STELLER SEA LION- FISHERY INTERACTIONS SUMMARY



CAUSES OF DECLINE

- Entanglement in debris
- Subsistence harvest
- Pollution

} UNLIKELY FACTORS

- Harassment
- Increased predation
- Disease

} POSSIBLE FACTORS

- Oceanographic changes
- Indirect effects of fisheries

} LIKELY FACTORS

LEGAL CHALLENGES

- 8 Aug 2000 – Injunction against all trawling in Critical Habitat
  - ❖ Remand to prepare comprehensive Biol. Opinion
  - ❖ Remand to prepare Suppl. Env. Impact Statement
- Programmatic SEIS – due late Jan 2001
- 30 Nov 2000 – BiOp completed; injunction lifted
- Special North Pacific Council meeting in Jan 2001
- Comments from all parties to judge on 2 February 2001